



Datasheets

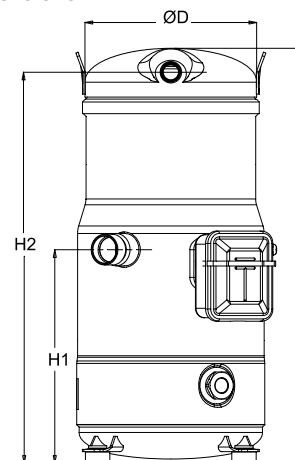
Danfoss scroll compressors  
**SM / SY / SZ / SH / WSH**



**General Characteristics**

Model number (on compressor nameplate)		<b>SH140A4ALC</b>
Code number for Singlepack*		120H0201
Code number for Industrial pack**		120H0202
Drawing number		8560003d
Suction and discharge connections		Brazed
Suction connection		1-3/8" ODF
Discharge connection		7/8" ODF
Oil sight glass		Threaded
Oil equalisation connection		1-3/4" Rotolock
Oil drain connection		None
LP gauge port		Schrader
IPR valve		None
Swept volume		132,9 cm <sup>3</sup> /rev
Displacement @ Nominal speed		23.1 m <sup>3</sup> /h @ 2900 rpm - 27.9 m <sup>3</sup> /h @ 3500 rpm
Net weight		67 kg
Oil charge		3,3 litre, POE - 160SZ
Maximum system test pressure Low Side / High side		33,3 bar(g) / 45 bar(g)
Maximum differential test pressure		37 bar
Maximum number of starts per hour		12
Refrigerant charge limit		7,9 kg
Approved refrigerants		R410A

**Dimensions**

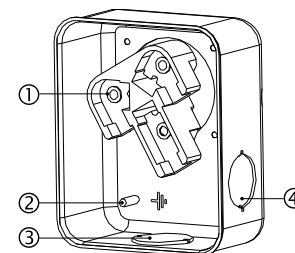


D=243 mm  
H=540 mm  
H1=278 mm  
H2=509 mm  
H3=- mm

**Electrical Characteristics**

Nominal voltage	380-400V/3/50Hz - 460V/3/60Hz
Voltage range	340-440 V @ 50Hz - 414-506 V @ 60Hz
Winding resistance (between phases) +/- 7% at 25°C	0,92 Ω
Rated Load Amps (RLA)	21,4 A
Maximum Continuous Current (MCC)	30 A
Locked Rotor Amps (LRA)	147 A
Motor protection	Internal overload protector

**Terminal box**



IP54 (with cable gland)  
1: Power connection, 3 x 4.8 mm (3/16")  
2: Earth M4-12  
3: Knock-out Ø 29 mm (1.14")  
4: Knock-out Ø 25.5 mm (1.00")

**Recommended Installation torques**

Oil sight glass	50 Nm
Power connections / Earth connection	3 Nm / 2 Nm
Mounting bolts	15 Nm

**Parts shipped with compressor**

Mounting kit with grommets, bolts, nuts, sleeves and washers
Initial oil charge
Installation instructions

**Approvals** : CE certified, UL certified (file SA6873), -

\*Singlepack: Compressor in cardboard box

\*\*Industrial pack: 8 Unboxed compressors on pallet (order per multiples of 8)

<b>Rotolock accessories, suction side</b>	<b>Code no.</b>
Solder sleeve, P10 (1-3/4" Rotolock, 1-3/8" ODF)	8153003
Rotolock valve, V10 (1-3/4" Rotolock, 1-3/8" ODF)	8168022
Gasket, 1-3/4"	8156132

<b>Rotolock accessories, discharge side</b>	<b>Code no.</b>
Rotolock valve, V05 (1-1/4" Rotolock, 7/8" ODF)	8168030
Gasket, 1-3/4"	8156132

<b>Rotolock accessories, sets</b>	<b>Code no.</b>
Solder sleeve adapter set (1-3/4" Rotolock, 1-3/8" ODF), (1-1/4" Rotolock, 7/8" ODF)	120Z0405
Valve set, V10 (1-3/4"~1-3/8"), V05 (1-1/4"~7/8")	7703392
Gasket set, 1-1/4", 1-3/4", 2-1/4", OSG gaskets black & white	8156013

<b>Oil / lubricants</b>	<b>Code no.</b>
POE lubricant, 160SZ, 1 litre can	7754023
POE lubricant, 160SZ, 2 litre can	7754024

<b>Crankcase heaters</b>	<b>Code no.</b>
Surface sump heater, 80 W, 24 V, CE mark, UL	120Z0388
Surface sump heater, 80 W, 230 V, CE mark, UL	120Z0389
Surface sump heater, 80 W, 400 V, CE mark, UL	120Z0390
Surface sump heater, 80 W, 460 V, CE mark, UL	120Z0391

<b>Miscellaneous accessories</b>	<b>Code no.</b>
Acoustic hood for scroll compressor SH105-161 & SM124, SM147	120Z0035
Gasket, 1-3/4"	8156132
Discharge thermostat kit	7750009

<b>Spare parts</b>	<b>Code no.</b>
Mounting kit for 1 scroll compressor including 4 grommets, 4 sleeves, 4 bolts, 4 washers	120Z0066
Oil sight glass with gaskets (black & white)	8156019
Gasket for oil sight glass (white teflon)	8156129
Service kit for terminal box 96 x 115 mm, including 1 cover, 1 clamp	8156135
T block connector 52 x 57 mm	8173230

**Performance data at 50 Hz, EN 12900 rating conditions**
**R410A**

Cond. temp. in °C (tc)	Evaporating temperature in °C (to)								
	-25	-20	-15	-10	-5	0	5	10	15

**Cooling capacity in W**

30	12 459	15 393	18 850	22 896	27 597	33 020	39 232	46 300	54 289
35	11 572	14 428	17 776	21 681	26 211	31 431	37 409	44 211	51 904
40	-	13 435	16 644	20 378	24 706	29 693	35 406	41 912	49 278
45	-	12 412	15 450	18 983	23 078	27 802	33 220	39 400	46 408
50	-	-	14 191	17 493	21 325	25 754	30 847	36 670	43 289
55	-	-	-	15 903	19 442	23 547	28 283	33 719	39 920
60	-	-	-	-	17 426	21 176	25 526	30 544	36 296
65	-	-	-	-	-	18 638	22 571	27 141	32 414

**Power input in W**

30	6 051	6 152	6 243	6 324	6 392	6 445	6 481	6 497	6 492
35	6 680	6 781	6 877	6 964	7 041	7 106	7 156	7 189	7 203
40	-	7 492	7 587	7 678	7 760	7 833	7 893	7 940	7 969
45	-	8 302	8 395	8 484	8 568	8 645	8 713	8 769	8 811
50	-	-	9 319	9 404	9 487	9 564	9 635	9 697	9 748
55	-	-	-	10 458	10 535	10 610	10 680	10 745	10 800
60	-	-	-	-	11 733	11 801	11 868	11 931	11 988
65	-	-	-	-	-	13 160	13 219	13 277	13 332

**Current consumption in A**

30	13.60	13.69	13.76	13.80	13.85	13.91	13.99	14.11	14.27
35	14.29	14.42	14.51	14.58	14.64	14.71	14.79	14.90	15.05
40	-	15.21	15.33	15.42	15.50	15.57	15.65	15.75	15.89
45	-	16.11	16.26	16.37	16.46	16.54	16.62	16.72	16.84
50	-	-	17.35	17.48	17.59	17.68	17.76	17.85	17.96
55	-	-	-	18.80	18.92	19.02	19.10	19.18	19.28
60	-	-	-	-	20.51	20.62	20.70	20.78	20.86
65	-	-	-	-	-	22.52	22.60	22.67	22.74

**Mass flow in kg/h**

30	258	317	383	460	548	648	762	892	1 038
35	254	313	380	457	546	647	761	892	1 039
40	-	308	376	453	542	644	759	890	1 038
45	-	302	370	448	537	639	755	886	1 035
50	-	-	363	441	531	633	749	881	1 030
55	-	-	-	433	522	625	741	873	1 022
60	-	-	-	-	513	615	731	863	1 013
65	-	-	-	-	-	603	719	852	1 001

**Coefficient of performance (C.O.P.)**

30	2.06	2.50	3.02	3.62	4.32	5.12	6.05	7.13	8.36
35	1.73	2.13	2.58	3.11	3.72	4.42	5.23	6.15	7.21
40	-	1.79	2.19	2.65	3.18	3.79	4.49	5.28	6.18
45	-	1.49	1.84	2.24	2.69	3.22	3.81	4.49	5.27
50	-	-	1.52	1.86	2.25	2.69	3.20	3.78	4.44
55	-	-	-	1.52	1.85	2.22	2.65	3.14	3.70
60	-	-	-	-	1.49	1.79	2.15	2.56	3.03
65	-	-	-	-	-	1.42	1.71	2.04	2.43

**Nominal performance at to = 5 °C, tc = 50 °C**

Cooling capacity	30 847	W
Power input	9 635	W
Current consumption	17.76	A
Mass flow	749	kg/h
C.O.P.	3.20	

**Pressure switch settings**

Maximum HP switch setting	45	bar(g)
Minimum LP switch setting	1.5	bar(g)
LP pump down setting	2.3	bar(g)

**Sound power data**

Sound power level	72.5	dB(A)
With acoustic hood	66.5	dB(A)

to: Evaporating temperature at dew point

tc: Condensing temperature at dew point

Rating conditions : Superheat = 10 K , Subcooling = 0 K

All performance data +/- 5%

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Performance data at 50 Hz, ARI rating conditions

R410A

Cond. temp. in °C (tc)	Evaporating temperature in °C (to)								
	-25	-20	-15	-10	-5	0	5	10	15

Cooling capacity in W

30	13 455	16 606	20 315	24 651	29 686	35 490	42 132	49 683	58 213
35	12 578	15 664	19 277	23 487	28 365	33 982	40 409	47 715	55 973
40	-	14 698	18 184	22 237	26 929	32 330	38 512	45 546	53 503
45	-	13 706	17 036	20 902	25 378	30 535	36 444	43 178	50 807
50	-	-	15 832	19 484	23 716	28 600	34 211	40 619	47 897
55	-	-	-	17 990	21 952	26 541	31 829	37 891	44 800
60	-	-	-	-	20 117	24 393	29 345	35 050	41 583
65	-	-	-	-	-	22 261	26 886	32 250	38 430

Power input in W

30	6 051	6 152	6 243	6 324	6 392	6 445	6 481	6 497	6 492
35	6 680	6 781	6 877	6 964	7 041	7 106	7 156	7 189	7 203
40	-	7 492	7 587	7 678	7 760	7 833	7 893	7 940	7 969
45	-	8 302	8 395	8 484	8 568	8 645	8 713	8 769	8 811
50	-	-	9 319	9 404	9 487	9 564	9 635	9 697	9 748
55	-	-	-	10 458	10 535	10 610	10 680	10 745	10 800
60	-	-	-	-	11 733	11 801	11 868	11 931	11 988
65	-	-	-	-	-	13 160	13 219	13 277	13 332

Current consumption in A

30	13.60	13.69	13.76	13.80	13.85	13.91	13.99	14.11	14.27
35	14.29	14.42	14.51	14.58	14.64	14.71	14.79	14.90	15.05
40	-	15.21	15.33	15.42	15.50	15.57	15.65	15.75	15.89
45	-	16.11	16.26	16.37	16.46	16.54	16.62	16.72	16.84
50	-	-	17.35	17.48	17.59	17.68	17.76	17.85	17.96
55	-	-	-	18.80	18.92	19.02	19.10	19.18	19.28
60	-	-	-	-	20.51	20.62	20.70	20.78	20.86
65	-	-	-	-	-	22.52	22.60	22.67	22.74

Mass flow in kg/h

30	257	315	381	457	544	644	757	885	1 030
35	253	311	378	454	542	642	756	885	1 031
40	-	306	374	450	539	639	754	884	1 030
45	-	301	368	445	534	635	750	880	1 027
50	-	-	361	439	527	628	744	874	1 022
55	-	-	-	431	519	620	736	867	1 015
60	-	-	-	-	509	611	726	857	1 005
65	-	-	-	-	-	599	715	845	993

Coefficient of performance (C.O.P.)

30	2.22	2.70	3.25	3.90	4.64	5.51	6.50	7.65	8.97
35	1.88	2.31	2.80	3.37	4.03	4.78	5.65	6.64	7.77
40	-	1.96	2.40	2.90	3.47	4.13	4.88	5.74	6.71
45	-	1.65	2.03	2.46	2.96	3.53	4.18	4.92	5.77
50	-	-	1.70	2.07	2.50	2.99	3.55	4.19	4.91
55	-	-	-	1.72	2.08	2.50	2.98	3.53	4.15
60	-	-	-	-	1.71	2.07	2.47	2.94	3.47
65	-	-	-	-	-	1.69	2.03	2.43	2.88

Nominal performance at to = 7.2 °C, tc = 54.4 °C

Cooling capacity	34 707	W
Power input	10 577	W
Current consumption	18.96	A
Mass flow	793	kg/h
C.O.P.	3.28	

Pressure switch settings

Maximum HP switch setting	45	bar(g)
Minimum LP switch setting	1.5	bar(g)
LP pump down setting	2.3	bar(g)

Sound power data

Sound power level	72.5	dB(A)
With acoustic hood	66.5	dB(A)

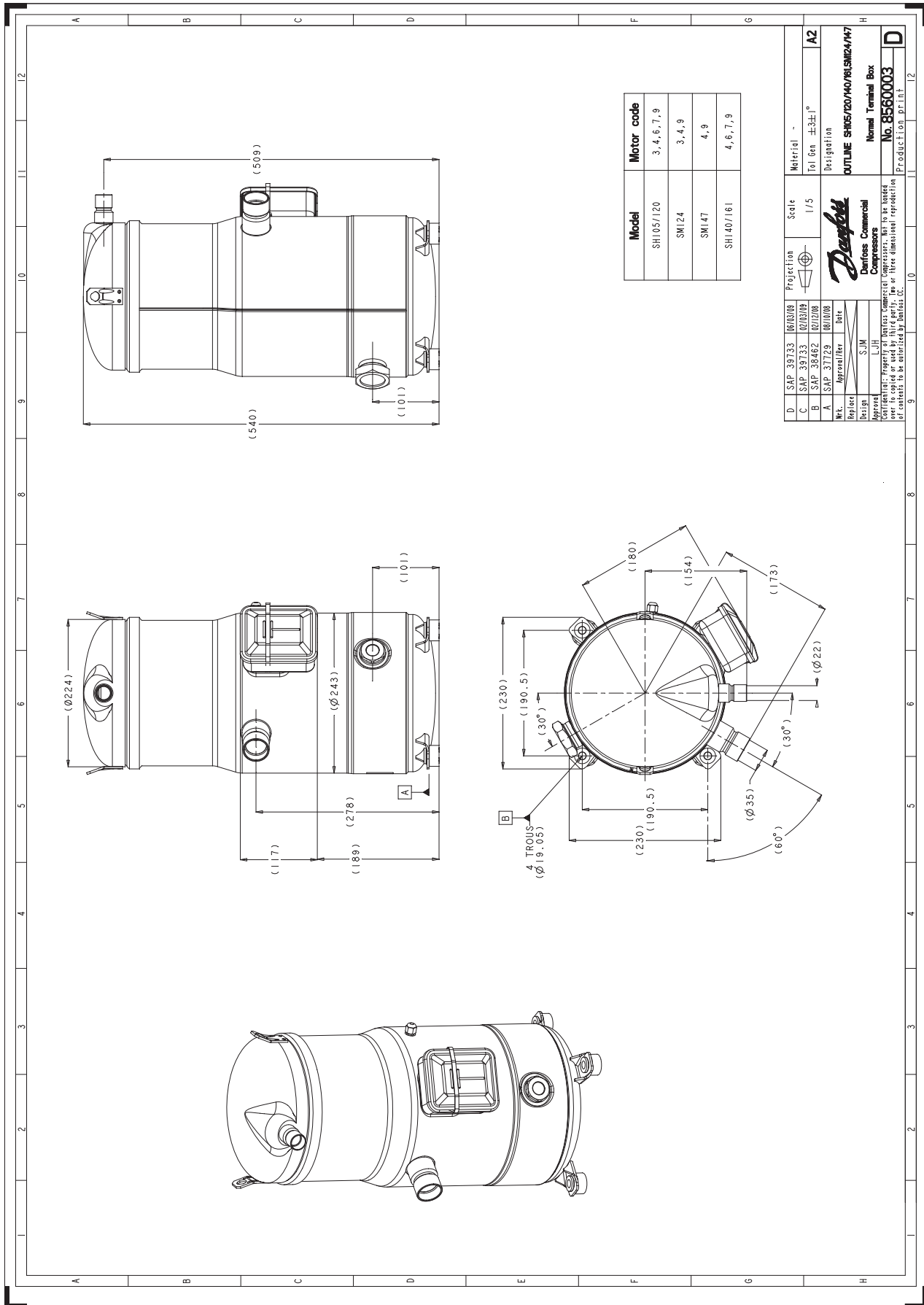
to: Evaporating temperature at dew point

tc: Condensing temperature at dew point

Rating conditions : Superheat = 11.1 K , Subcooling = 8.3 K

All performance data +/- 5%

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